DISCUSSION OF THE CLAIMS

Claims 1-8 and 10-25 are pending in the present application. Claim 9 is a canceled claim. Claims 24 and 25 are new claims. Support for new Claims 24 and 25 is found in original Claim 9 and in paragraph [0016] on page 10 of the as-filed disclosure. Independent Claim 1 is amended to recite an electron-transporting material having a particular hole mobility. Support for the amendment is found in paragraph [0016] on page 10 of the as-filed disclosure.

No new matter is added.

REMARKS

Independent Claim 1 now recites an electron-transporting material having a hole mobility (i.e., described as the value μ(h) measured at a field intensity of 10^5 to 10^7 V/cm of greater than 1.0×10^{-7} $cm^2/(V \cdot s)$. New dependent Claim 25 recites a hole mobility of greater than 1.0×10^{-5} $cm^2/(V \cdot s)$.

Applicants submit the organic electroluminescent device of Claim 1 is both novel and not obvious under the meaning 35 U.S.C. § 102/103 of the U.S. patent laws.

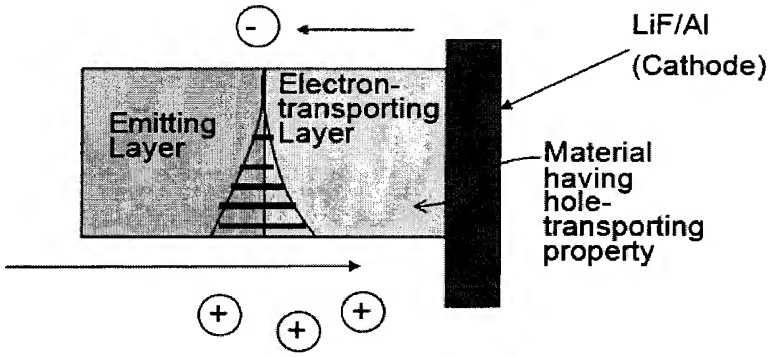
Applicants submit herewith technical information proving that the electron-transporting layer of the Tsuboyama reference (JP 2002-343572) does not meet the hole mobility requirements recited in the present claims. The Tsuboyama reference describes the use of "Alq_3" as a material for an electron-transporting layer (see paragraph [0104] and [0113] of the machine English translation of the Tsuboyama reference of record in the present application). Applicants submit that those of skill in the art readily recognize that Alq_3 has a hole mobility value of "between 10^{-9} and 10^{-8} $cm^2/(V \cdot s)$". As proof Applicants submit herewith the technical publication "Hole Transporting Properties of tris(8-hydroxyquinoline) aluminum (Alq_3)," *J. Appl. Phys.*, 100, 094502 (2006). This technical paper provides an explicit description of the hole mobility properties of Alq_3 and makes it clear that those of skill in the art would readily recognize that this material has hole mobility properties that are outside the hole mobility properties recited in present Claim 1.

One aspect of the importance of a hole mobility is described in paragraph [0014] on page 9 of the as-filed disclosure. Determination of hole mobility is described in paragraph [0015] on page 9 of the as-filed disclosure.

An electroluminescent device including an electron-transporting layer meeting the hole mobility requirements of present Claim 1 prevents hole accumulation between an emitting layer and the electron-transporting layer. This in turn allows suppression of drive

voltage. This phenomena is described, in part, in the diagrams shown below. By preventing hole accumulation holes more easily moved from the emitting layer to an electron-transporting layer of an electroluminescent device. This in turn permits suppression of an increase in drive voltage.

The effect of this feature of the invention is exemplified in Examples 1-5. In one aspect of the invention holes flow to the cathode without accumulation at the interface of the emitting layer and the electron-transporting layer. The electron-transporting materials used in Examples 1 to 5 have hole-transporting property. As a result, an increase in drive voltage can be suppressed.



Comparative Example 1 demonstrates the importance of the hole mobility properties of present Claim 1. Holes cannot flow to the cathode and accumulate at the interface of the emitting layer and the electron-transporting layer, since ETM-ref has no hole-transporting property. As a result, an increase in drive voltage cannot be suppressed.

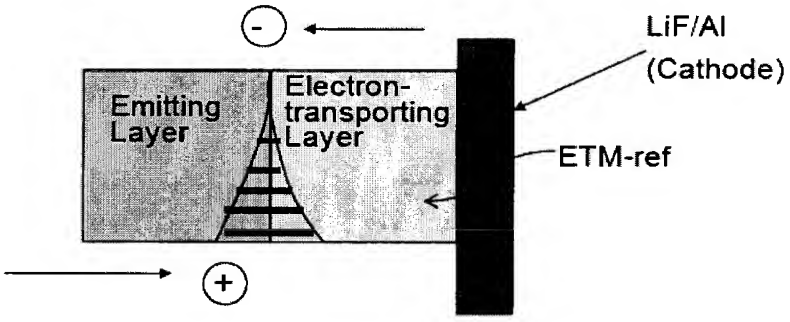


Table 1 of the as-filed disclosure (reproduced in part below for convenience) shows that substantially improved current efficiency is provided in an electroluminescent device adhering to the present claim limitations in comparison to an electroluminescent device which has a relatively higher drive voltage than the drive voltage of the inventive examples which meet the hole mobility requirement recited in Claim 1. For example, inventive Examples 1-4 have a drive voltage ranging from 6.0 to 7.5 V. In contrast, Comparative Example 1 has a drive voltage of 9.5 V. This in turn permits a substantially improved current efficiency in the inventive examples.

TABLE 1

	Electron-transporting element					Current		Current
	Type	IP (eV)	Eg (eV)	Eg^T (eV)	Voltage (V)	density (mA/cm^2)	CIE-(x, y)	efficiency (cd/A)
Example 1	ETM_No. 1	5.7	3.5	2.90	6.0	0.83	(0.20, 0.41)	12.0
Example 2	ETM_No. 2	5.7	3.0	2.80	7.5	0.58	(0.21, 0.41)	17.0
Example 3	ETM_No. 3	5.8	3.3	2.60	6.0	0.83	(0.21, 0.41)	12.0
Example 4	PC-7	5.7	3.0	less than 3.0	7.5	0.91	(0.21, 0.41)	11.0
Example 5	Alq	5.7	2.7	less than 2.7	8.0	1.01	(0.21, 0.41)	10.0
Comparative Example 1	ETM_ref	6.6	4.4	2.6	9.5	2.10	(0.21, 0.41)	4.9

Emitting layer: Host material (Host No. 1); Ip = 5.6 eV, Eg = 3.53 eV, Eg^T = 2.85 eV
Luminescent dopant (FIrpic); Eg = 2.8 eV, Eg^T = 2.7 eV

Nothing in the art cited by the Office discloses or suggests the inclusion of an electron-transporting layer having the hole mobility properties recited in the present claims. In fact, the Office cites to disclosure of an electron-transporting material-containing layer that includes a compound (i.e., Alq_3) that does not meet the hole mobility requirements of Claim 1.

Applicants submit that withdrawal of the rejection and the allowance of all now-pending claims is appropriate.

The Office further cited to Tomita (U.S. 2006/0141284) in support of the rejection. The Tomita reference has a publication date of June 29, 2006. The present application is a national stage application of PCT/JP05/01799 having a filing date of February 8, 2005. The effective U.S. filing date of the present application is therefore February 8, 2005, i.e., before the date the Tomita publication is effective as prior art to the present application.

Applicants point out that the Tomita reference does not qualify as prior art to the present application under 35 U.S.C. § 102(e) for the reason that the international application corresponding to the Tomita reference was published in Japanese.

Applicants submit herewith a certified English translation of the priority document of the present application. The priority document has a filing date of February 9, 2004, before the date on which the international application corresponding to the Tomita reference was published (i.e., WO 2004/035709, April 29, 2004).

Applicants thus submit that the Tomita reference is disqualified as prior art to the present application.

For the reasons discussed above in detail, Applicants request withdrawal of the rejection and the allowance of all now-pending claims.

Respectfully submitted,

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